US Army Corps of Engineers ®

The Corps Environment

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School children help ranger plant 18,000 trees at lake

By Diana McCoy
Kansas City District

A home grown effort by one U.S. Army Corps of Engineers ranger has been taking root in Hillsdale, Kan., for the past 20 years.

Hundreds of students, teachers and parents from Hillsdale Elementary School and various volunteers took part in the annual Trees for the Future event at Hillsdale Lake in Paola, Kan., this year, marking the event's 20th anniversary.

Jim Bell, a park ranger at the Corps' Hillsdale Lake, started the event to create interest and provide a hands-on program encouraging children to establish a wildlife habitat.

There are more than 8,000 acres of land open to public hunting for deer, turkey, doves, quail, squirrels, rabbits and waterfowl. Staff at the lake continually work toward making the land the perfect habitat for the animals, Bell said.

"With the help of the elementary school, we've recreated fence lines and split large fields with tree lines in order to reduce field sizes," he said. "I started the program because it

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Zane Clark (right) and Alecs Burger, third-graders at Hillsdale Elementary, work together to plant a tree during the Trees for the Future event at Hillsdale Lake in Kansas. *(Courtesy photo)*

Corps team works to bring back 'Chesapeake Gold'

By Nancy Allen
Norfolk District

A U.S. Army Corps of Engineers team is fighting nature to restore one of Virginia's most historic natural resources, the native *Crassostrea virginica*, better known as the Eastern Oyster, which has been providing ecological and economic benefits to the mid-Atlantic region for more than 400 years.

As recently as 100 years ago, huge oyster reefs posed navigational hazards to ships in the area. These historic populations, dubbed "Chesapeake Gold" by watermen, not only supported a booming oyster industry in Virginia and Maryland, but served the ecosystem by filtering water in the bay and providing habitat and food for other creatures.

Today, the oyster population in the Chesapeake Bay has been reduced to about 1 percent of its historic level due to years of over-harvesting, disease and loss of habitat.

The mission of the Corps' Chesapeake Bay Oyster Restoration Program is the ecological restoration of the

See oysters page 8

Inside this issue:

Disney's magic reaches ecosystem conservation

By Amanda Ellison
Jacksonville District

Walt Disney's innovative ideas changed the way America views entertainment. In bringing his dreams to reality, Disney ushered millions of people each year into his wonderful world of imagination.

Disney is, of course, best known for his theme parks, resorts, animation and movies. What isn't as widely known is his commitment to environmental conservation.

Walt Disney World, located in Lake Buena Vista, Fla., encompasses 30,500 acres, about 47 square miles. Included in Disney's plan was the intention to set aside 7,500 acres of land that would be permanently kept in its natural state. Today, the preserved area is actually 8,300 acres. In 1990, the Walt Disney Company created a corporate office for its expanding responsibility in protecting natural resources.

Disney's commitment to the environment led to The Nature Conservancy's Disney Wilderness Preserve. The preserve provides compensation to wetlands and listed species for a number of development projects in the greater Orlando, Fla., area. Ownership and management of the preserve are vested in The Nature Conservancy through agreements with developers and regulatory agencies, including the U.S. Army Corps of Engineers.

The core of the preserve is the 8,500-acre Walker Ranch, located in an area surrounded by lakes and wetlands. To drain the wetlands on the ranch, the ranchers/owners dug ditches through the wetlands and created pasture land. Areas that contained wetland vegetation were replanted with pasture grasses for cattle.

This after photo shows the environmental enhancement and restoration at Walker Ranch. *(Courtesy photo)*

The Corps issued a permit for Walker Ranch, requiring environmental enhancement and restoration of the property as a condition of the permit. To document progress toward the goals, the permit required that monitoring and management reports for the site be submitted annually.

Most mitigation areas are monitored and reports are submitted on an annual basis for approximately five years, depending on the type of mitigation required. After the mitigation area has met the success criteria, the permitee can be released from further monitoring.

The Corps has routinely monitored the Walker Ranch, finding its environmental restoration efforts successful.

"During our compliance inspections, we check to see that the wetland mitigation area is adequately supporting wetland vegetation, so that it meets the Corps' definition of a wetland," said Teresa Frame, project manager of the Jacksonville District Regulatory Division.

Staff and volunteers conduct prescribed burns and remove invasive, non-native plants to improve uplands, and scientists monitor restored areas to ensure that restoration is successful.

Last year, Jacksonville District issued approximately 3,000 permits that authorized impacts to wetlands. The Corps required approximately 1,000 of those permitted projects to provide wetland mitigation through enhancement, restoration, creation or preservation.

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The Corps Environment welcomes submissions. Please send your articles, photos, events, letters or questions via e-mail to: andrea.m.takash2@usace.army.mil.

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Corps, Red Lake Band of Ojibwe agree to fish passage on reservation

By Peter Verstegen
St. Paul District

The U.S. Army Corps of Engineers St. Paul District and the Red Lake Band of Ojibwe agreed to work toward construction of a fish passage at the outlet of Lower Red Lake in Clearwater County, northwest of Bemidji, Minn. The project will be constructed on the Red Lake Band of Ojibwe Indian Reservation.

Col. Mike Pfenning, St. Paul District commander, and Floyd Jourdain Jr., Red Lake tribal chairman, signed a memorandum of understanding March 13.

"The MOU provides Bureau of Indian Affairs permission to construct the project on tribal land and was the last document needed prior to finishing the plans and specifications," said Steve Clark, project manager.

In 1951, the Corps modified the Red Lake Dam, located on the Red Lake Band of Ojibwe Indian Reservation, and assumed its operation under the conditions set forth in tribal resolutions passed by the Red Lake Band of Ojibwe. Since completion of the project, the Red Lake Band has expressed concerns regarding the congregation of fish below the dam and the inability of fish to re-enter Red Lake.

The Corps attempted to alleviate this problem by installing a temporary fishway in the 1950s and by reducing the ability of fish to swim out of the lake through the dam by placing stoplogs in front of the dam gates. Early fishway technologies were ineffective, and reducing downstream fish passage through a dam is difficult at best.

The proposed fishway would be a natural channel design that has recently proven successful in Minnesota and other locations.

A concrete fish trap would be included in the design to prevent common carp from entering the lake by allowing selective transport of desirable species. The fish trap would also facilitate the capture of walleyes for egg stripping in the spring for rearing in a fish hatchery operated by the Red Lake Department of Natural Resources. Construction costs for the project are estimated at about $700,000.

"In the past few years, the district has worked through many obstacles to move this project forward," Clark said. "Among them were the approval of a construction authority from Assistant Secretary of the Army (Civil Works), the planning and design of a unique project and, most recently, obtaining the real estate permit from Bureau of Indian Affairs. Through the process of planning this project, an excellent working relationship has been developed with the Red Lake Band."

An 8(a) small business contractor, owned by the Red Lake Band, will complete the work after the district completes the plans and specifications and requests a cost proposal from the contractor.

More stories available online

The Internet exclusive stories for the July issue are: *Corps achieves major milestone at Superfund site*, *World War II-era chapel move highlights 'green' sustainability*, *Norfolk District helps Fort Eustis with long-term planning*, *Public asked to help prevent spread of invasive algae*, *Smart Rivers Conference scheduled for September*, *Federal and local agencies clean up Tobyhanna FUDS site and Corps discusses FUDS and public involvement at conference.*

These articles are located at http://hq.environmental.usace.army.mil/Corps_Environment/current.htm.

Keep those great stories coming!

Army mandates 'green' construction

By Andrea Takash
U.S. Army Engineering and Support Center, Huntsville

Imagine an environmentally friendly building where the work force controls the office temperatures, solar panels generate electricity and rainwater soaks back into the ground recharging the aquifer.

This is not a tale of an office building for a Fortune 500 company, but instead it is a true story about new features in military construction.

Starting with fiscal year 2008, all new military vertical building construction projects must be capable of achieving a silver level of Leadership in Energy and Environmental Design for New Construction, better known as LEED®-NC. Army family housing and Residential Communities Initiative will continue to attain the Sustainable Project Rating Tool's (SPiRiT) gold rating level.

As one of the U.S. Army Corps of Engineers' centers of standardization, the Engineering and Support Center, Huntsville, is prepared to support the LEED requirement.

"As Huntsville Center project teams work on the various standard designs for Army installations, the teams will ensure that the LEED requirement is met," said Todd DuVernay, chief of Huntsville Center's Specifications and Service Branch and a LEED accredited professional.

The U.S. Green Building Council (USGBC), a non-profit organization, developed LEED, which is a rating system that provides standards for the design, construction and operation of "green" buildings. Buildings that meet certain requirements can achieve certified, silver, gold or platinum rating levels. The LEED requirements fall under five focus areas: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

People use the word "sustainable" frequently when referring to environmentally friendly products. When it comes to designing buildings, the word takes on an extensive definition.

"Sustainable design and development (SDD) meets human needs by maintaining a balance between development, social equality, ecology and economics," said Annette Stumpf, a project manager at the Engineer Research and Development Center's Construction Engineering Research Laboratory and a LEED accredited professional."

DuVernay pointed out sustainable features benefit the work force, too.

"Studies have shown that when people breathe clean air in their office and control their heating, air conditioning and lighting, they perform better," he said. "These features also have shown a decrease in absenteeism."

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The Corps of Engineers built several sustainable features into the Golden Knights Parachute Team's Headquarters building at Fort Bragg, N.C. *(Photo by Jonas Jordan)*

Refuge project for whooping cranes flourishes

By Galveston District Public Affairs

Six years ago Galveston District held a dedication ceremony for the Aransas Wildlife Refuge Project in Austwell, Texas. The project was completed within its three-year time frame. The nearly $20 million project provided erosion control along the shoreline of the habitat for the world's largest breeding flock of whooping cranes.

The challenge was how to stop the erosion being caused by wind driven waves and vessel traffic that was gradually, but steadily reducing the acreage within the habitat. The answer lay in armoring the banks with concrete matting.

A 31-mile stretch along the Gulf Intracoastal Waterway, which included nearly 14 miles of banks within the Aransas National Wildlife Refuge, received the concrete armor. Nearly 1,600 acres of marsh, prime feeding grounds for the large birds, were to be created through the beneficial use of dredged material.

Now, six years after the dedication, the project is flourishing. Banks armored with the articulated concrete mats remain in place with no signs of damage or erosion.

The crane population has exploded. In the winter of 2001 there were 132 whooping cranes that spent the winter at the refuge, arriving in October from nesting grounds in Canada. Today there are 257 of the whooping cranes living at the habitat.

Whooping cranes flourish at the Aransas Wildlife Refuge. *(Courtesy photo)*

LEED

Continued from page 4

To be successful in using SDD and meeting LEED requirements, DuVernay stressed the need to start at the beginning of the project and include a representative from each engineering discipline and all stakeholders.

"The team must do a good job of identifying sustainable features at the beginning of the planning phase," he said. "The funding, design and construction of LEED buildings will work better if design integration between all disciplines starts at the planning phase and keeps going through building operations."

Huntsville Center's team for the Army Community Service Center standard design started planning for LEED requirements in the initial phase.

"At the start, we searched out every avenue for sustainable features. We set project goals and came up with the best product for the user," said Marilyn Scott, an architect in Huntsville Center's Architecture Branch. "As we move along in the design, we will see what features will really work."

The team is looking at a variety of ways to employ sustainable features as much as possible, Scott said.

For more information on LEED, visit the USGBC Web site at www.usgbc.org or the Engineering Knowledge Online site at https://eko.usace.army.mil/fa/sdd/.

"One aspect we are looking at is mechanical equipment as a means of increasing energy efficiency," she said. "We are continually looking at ways to cut costs on energy use. We want Army installations to be able to maximize all of the sustainable features in the design."

Project teams must self-rate the project using the LEED checklist, which includes sections where projects earn points under the five focus areas.

"Teams are encouraged to register projects on the USGBC Web site because this gives them access to more resources and support from the USGBC," Stumpf said.

Project teams also are encouraged to have a LEED accredited professional on the team.

"In order to get accredited, people must take the LEED accreditation test," DuVernay said. "I encourage people to put LEED accreditation on their individual development plan. Even if people do not get accredited, it is important to understand LEED. There should not be only one person on the team that understands LEED."

Stumpf said she agrees with DuVernay's point.

"Team members need to actually read the LEED resources," she said. "The Army is a member of the USGBC, so all Corps employees are eligible for the member discount on any USGBC training or reference material."

New equipment saves time, money

By Pat Richardson and Lisa Geist
Alaska District

Alaska District has a new tool for investigating petroleum contaminated sites. The state-of-the-art Rapid Optical Screening Tool (ROST) saves the district and its customers time and money, operating at approximately one-third the cost of conventional soil sampling techniques.

Less than 20 ROST units operate worldwide. Alaska District has two of the newest and most mobile units. One is mounted on the back of a truck, and one is on a small tracked vehicle.

"The tracked ROST is ideal for Alaska where there are no roads to remote sites," said Ken Andraschko, environmental engineer and the Alaska District's Innovative Technology advocate. "It can be loaded on an airplane, barge, ferry or trailer and shipped nearly anywhere in the state, including island sites."

In a state with more than 600 Formerly Used Defense Sites (FUDS), impacts of using this new tool could be huge. Alaska District has used ROST to complete field work at more than 20 sites across the state.

In late April, the tracked ROST was used at a FUDS project at a former Naval Operations Base on Japonski Island in Sitka, Alaska.

"ROST is the best investigative tool for hydrocarbons currently available," Andraschko said. The district uses the ROST to detect petroleum derived contaminants including gasoline, diesel, heating oil, jet fuel, bunker fuel and some of the heavier hydrocarbons like creosote and coal tar.

The State of Alaska Department of Environmental Conservation accepts use of the ROST as a method for conducting remedial site investigations. The U.S. Environmental Protection Agency has verified and proven the ROST technology.

"The ROST operates using a direct push drill rig to investigate the subsurface," said Scott Kendall, environmental engineer and ROST program manager. "Direct push drilling is like hammering a nail into the ground."

The ROST uses an ultraviolet laser light to excite petroleum molecules, causing the molecules to fluoresce, or give off light. This process is called Laser Induced Fluorescence. The direct push drill rig forces a 1.5-inch hollow steel rod into the ground. Inside this rod are two fiber optic cables, which transmit laser light down the cable to a probe at the end of the rod. The light exits the probe via a window made of sapphire. The resulting fluorescence is sent back to the surface via a second fiber optic cable for analysis by the ROST system.

Chris Berini operates the geoprobe at Dutch Harbor, Alaska. *(Photo by Kenneth Andraschko)*

"Investigative decisions can be made on the fly in the field," Andraschko said. "Knowing where the contamination lies beneath the surface allows for better placement and design of remediation systems, saving valuable time and money."

The ROST results are displayed on a computer in real-time, giving the field crew immediate information on the depth and magnitude of contamination. The system is sensitive enough to detect petroleum hydrocarbons at concentrations of 100 parts per million. Fluorescence data is recorded continuously during the drilling process, which provides hundreds of data points per boring.

"Another advantage is that we can map out plumes in the field," Kendall said. "The crews can make adjustments to surround the plume with clean readings to define the contaminated area."

The ROST system has no investigative derived waste. ROST can also be used to collect traditional samples for laboratory analysis, including testing for non-petroleum compounds.

"I am excited about the ROST technology," said Mary Jemin, Alaska District's FUDS project manager. "Finally, we have a technology that is more advanced than using an excavator and a photo ionization detector. With the ROST, we can turn plume data into a visual depiction that we can use in meetings with the public."

The ROST data can be uploaded into software programs that create graphs and maps depicting the types and depth of the hydrocarbon contamination.

The ROST can even be used to probe for underwater sediment contamination.

In 2006, the team worked offshore from a barge to support proposed expansion of the Port of Anchorage. The team investigated 78 feet below the sediment/water interface.

While it may not completely replace traditional soil sampling techniques, the ROST gives Alaska District a valuable alternative investigative method for measuring petroleum contamination with real-time field results.

Updated data management system changes way Corps manages aquatic environment

By Jon Soderberg
USACE Headquarters

The U.S. Army Corps of Engineers plays a key role in managing the nation's waters and regulates many types of work associated with them. In recent years Supreme Court rulings have changed aspects of the way the Corps administers the Clean Water Act. To respond to these changes and an increasing permitting work load, the Corps' regulatory program has made a major leap forward by upgrading its data management systems.

For more than 30 years, each of the 38 Corps Districts' Regulatory Programs independently tracked basic data concerning the number of permits issued and the total impacts to waters of the United States. Data was collected and managed locally and reported only on a quarterly basis. In late 2003, the Regulatory Program introduced ORM, an acronym for the "Operation and Maintenance Information Business Link Regulatory Module." With several years of flat lined budgets, advances in technology, and the growing needs of the regulatory program, the Corps decided to upgrade ORM to keep up with the changing laws and needs of the Corps and the public.

For additional information on ORM 2 contact Jon Soderberg at jon.e.soderberg@usace.army.mil.

"The development of ORM 2 will be a defining moment for environmental programs across the entire Corps," said Mark Sudol, acting chief of Operations.

ORM 2, a web-based application with a fully integrated geographic information system, will expand the way the regulatory program can be managed. The ORM 2 system will track the permit actions by a physical location on the landscape and all the aquatic resources at that location, whether or not impacts are authorized at that location. Regulators are provided a suite of tools to assist in the data entry process. From geo-coding of addresses like most navigation software to standard formatted letter generation, the system takes advantage of many of the common web-based tools people now use. The ORM 2 system streamlines or eliminates data entry headaches.

The new data management system will help the Corps track permit applications for construction activities that occur in the nation's waters, including wetlands. *(Photo by Anthony Bley)*

"ORM 2 was developed to complement and coordinate with Enterprise Geographic Information System (EGIS) programs and incorporate data from widely disparate sources," Sudol said. "At a minimum, it will greatly improve communication across all Corps programs as we enter and share spatial data on our projects, reservoirs, real estate holdings, navigation facilities and permits. In the future, as we share technical data with local governments and provide technical assistance to watershed groups, ORM 2 will be one facet of the Corps' re-emergence as a leader in integrated water resources and a key player in watershed management."

"To ensure that the strides made in the past three years not only continue but increase, we will start today to lay the foundation to ensure that all wetlands decision-makers, inside and outside the federal government, have real-time access to the information they need to make enlightened decisions," said James L. Connaughton, Council on Environmental Quality chairman, in a letter to Congress transmitting "Conserving America's Wetlands 2007: Three Years of Progress Implementing the President's Goal."

ORM 2 changes the way the regulatory program looks at, manages and tracks the aquatic environment. Local data systems only tracked the permit and the impact of that permit with no long-term monitoring of what was occurring on the ground. The ORM 2 system tracks the legacy of the aquatic resource the Corps is regulating. Unlike its predecessors, ORM 2 is built so upgrades can be made easily.

Oysters

Continued from page 1

oyster and is focused on establishing sustainable breeding populations of native oysters in sanctuaries, free from fishing pressure. The program is being conducted in Virginia by the Corps' Norfolk District and in Maryland by the Corps' Baltimore District.

The Corps team was more accustomed to building projects and restoring wetlands or shorelines. Restoring a living organism had never been attempted. Norfolk District embarked upon its first oyster restoration effort in 2000 with a small-scale reef construction project in the lower Rappahannock River. Another project was completed in the Tangier/ Pocomoke Sounds in 2003.

Corps staffers used lessons learned in the Rappahannock and Tangier/ Pocomoke Sound projects as they began making plans for their next restoration effort in the Great Wicomico River. The Great Wicomico project was initiated in 2004 and involved the construction of 64 acres of oyster reef habitat. The reefs were then seeded with more than 12 million oysters. The project marked the first large-scale restoration of an estuary subsystem as a single unit in order to "kick start" sustained natural oyster reproduction.

Now, nearly two years after the construction and seeding was initiated, the Corps is beginning to see results. While spatset (the annual recruitment of young oysters to the current oyster population) this past year varied, some of the recently restored sites showed spatset as high as 6,000 spat per bushel, a level not seen in decades.

The partners have now turned their attention to the site for the next restoration project, the historic Lynnhaven River in Virginia Beach, Va. In the early part of the 20th century, Lynnhaven oysters were abundant and world-famous for their size and salty taste. Orville and Wilbur Wright were said to have eaten Lynnhaven oysters before embarking on their historic first flight in Kitty Hawk, N.C.

Workers seed the Great Wicomico reefs. Seeding involves dumping baskets of oysters overboard, using GPS to determine the exact location of the constructed underwater reefs. *(Photo courtesy of the National Oceanic and Atmospheric Administration)*

The Lynnhaven River project will involve the initial construction of 111 acres of oyster reef habitat and the seeding of wild stock Lynnhaven oysters, which have shown to be more resistant to Dermo and MSX, diseases that have ravaged oyster populations in the bay. The total project scope may restore approximately 430 acres of oyster reefs in the Lynnhaven River.

"The Lynnhaven is one of the best sites for restoration in the bay," said Dave Schulte, Corps biologist and technical team leader. "We'll be building reefs where there haven't been reefs in a long time. We have more information now, and we're using the best science."

The Lynnhaven River Project will offer the opportunity for the Corps and its partners to evaluate the use of different substrate material — in other words, creating oyster reefs not of fossilized oyster shell, but granite.

Current research comparing fossil shell reefs to reefs constructed of alternative materials show that the survival rates of attached oysters are higher on granite reefs, and the reefs are in better condition.

"We're taking a holistic look at oyster restoration," said Craig Seltzer, chief of the Environmental Analysis section in Norfolk District's Planning Branch. "When you look at a river there are a number of factors that can impact the outcome. We're paying attention to water quality, the effects of development, hydrodynamics."

The team hopes the Lynnhaven project will continue to provide more insight into the complicated task of reviving the native oyster in the bay.

"We want to build sustainable oyster restoration projects," Schulte said, referring to reefs that will last beyond five or 10 years. "Looking into the future, there are a lot of questions we need to answer, and the Lynnhaven project will be a good place to start. The Corps is pushing for changes in the way oyster restoration is approached."

Nashville District creates aquatic habitat at Cordell Hull Lake

By Dave Treadway
Nashville District

U.S. Army Corps of Engineers park rangers at Cordell Hull Lake in Carthage, Tenn., are trying to improve anglers' chances for success.

The rangers are constructing "spawning benches" around the lake, which will serve as artificial habitat for fish to accomplish their daily and seasonal nesting tasks with greater efficiency. The end result may be improved bass populations which would mean better chances for fishermen.

As impoundments such as Cordell Hull Lake grow older, native stump fields, which are often left during clearing prior to initial filling to provide fish habitat, may disappear due to several factors. Two such causes are erosion and decomposition as a result of the wet-dry cycle imposed by annual maintenance draw-downs. As stump fields disappear, a valuable aquatic habitat is no longer available to fish species which use them for cover.

Spawning benches should provide similar cover to pre- and post-spawning adult largemouth bass and post-season adult pan fish, said John Derby, park ranger.

Newly constructed benches line the sloping banks of Cordell Hull Lake in Tennessee. *(Courtesy photo)*

Benches are built by attaching a slab of wood on top of two large concrete blocks with wire. The "bench" resembles a traditional park bench but, in this case, the bench is designed for fish instead of people. The bench offers the necessary shade during the warmer months when female largemouth bass are seeking such areas against the shore line on which to build a nest. The benches are being placed in 4 - 6 feet of water.

In 2006, Cordell Hull rangers placed 30 benches in areas of the lake where boat traffic was kept to a minimum. Some of those benches were subsequently destroyed last year by people who did not recognize the bench as a management tool to improve fish habitat. Three benches were disassembled and burned at the Environmental Study area located across from the Defeated Creek Fire Station and five more were removed and burned near the Horse Shoe Bend boat ramp.

To preserve other benches built last year and those added this year by the ranger staff, the Corps is asking the public to leave the structures in place if they observe them during times when water levels are lower during the winter.

"Their selfless efforts," Derby said, "will increase everyone's chances at landing more bass."

The first 30 benches were placed last year at river mile 315 near the Two Prong Cove below the Bear Waller Gap hiking trail, at river mile 314 near the Needle Dam Boat Ramp, and inside the War Trace cove at river mile 344.

An additional 10 benches will be placed at Two Prong, and 15 will be behind Defeated Creek Marina.

These areas were chosen because of the gravel bottoms in which fish like to build their nests.

Environmental and Natural Resources Conference slated for October

Registration will begin within the next several weeks for the U.S. Army Corps of Engineers Environmental and Natural Resources Conference Oct. 29 – Nov. 2 at the Crowne Plaza Hotel in San Antonio!

Check out https://eko.usace.army.mil/usacecop/pub/ecop/conferences/2007enr/ for all the latest conference information and to make your reservations.

The conference, with its focus on "Listening and Learning to Sustain Our Mission and Reinforce Our Environmental Operating Principles," will foster learning, sharing and reinforcing key concepts. It is open to district, division and project/facility leaders who work in the environmental and natural resources management fields.

The agenda is still being finalized but will include sessions and guest speakers who will focus on how Corps actions affect the environment and natural resources.

Household waste facility logs more than 5 million items

New Orleans' facility processes hazardous items left after Hurricanes Katrina and Rita.

By Dave Harris
Louisiana Recovery Field Office

You can't take your bottles, cans, newspapers or cardboard to them to recycle, but the U.S. Army Corps of Engineers' Hazardous Household Waste Facility has found ways to tame or reuse flammables and other dangerous items left behind by displaced residents after Hurricanes Katrina and Rita.

A half-century and more ago, backyard hobbyists and corner gas stations thought nothing of disposing of "hazardous" wastes by dumping it in the ground, burying, burning or hauling it to the dump.

Since then, good science has shown earlier practices contaminated the drinking water, streams, fish and wildlife, and the rest of the food chain.

Alarmed, agencies and contractors began massive cleanup, recycling and re-use programs, especially after President Richard M. Nixon created the Environmental Protection Agency.

Historical documents indicate that even before the EPA, the Corps in the 1960s initiated environmental stewardship. The Corps set up environmental review boards and environmental resource sections as watchdog organizations to press for ecological considerations in engineering, construction and recovery projects.

Today the seven Environmental Operating Principles are among the top priority core competencies of the Corps.

Flooded and abandoned Louisiana houses following Katrina and Rita resulted in millions of items of household hazardous and toxic wastes, to include such categories as batteries, paints, aerosols, electronics, flammables and ammunition.

The Household Hazardous Waste Facility in New Orleans' Gentilly area was first operated by the EPA to process such items. The Corps took over the facility last November.

Workers have so far retrieved, sorted and processed more than 5 million items, including indoor pesticides, motor oil and propane.

Tim Gouger, who oversees the facility operation, said crews recover many of the items for beneficial use.

"Flammable materials become feedstock to fuel cement kilns throughout the country," he said. Propane cylinders with valves that meet current specifications are palletized and trucked away by one of the larger consumer propane companies.

"They reuse both the gas and the cylinders," he said. Gouger explained that the older cylinders with obsolete valves undergo a process in which the gas is burned off and the cylinders crushed and sold as scrap. Oxygen and gas cylinders are de-gassed, de-valved and crushed as well.

Certain items and gasses are sent for offsite processing, Gouger said, such as Freon, ammonia, chlorine and acetylene torches.

What about guns and ammunition — anything salvageable?

No, he said. "They're rust buckets. The ammo has been under water and compromised. We send it to popping furnaces where it is detonated," he said.

Information on the guns is reported to the proper authorities. The guns are smelted, and the metals are reused.

The facility does a robust business with any substance that has fuel potential — "anything with recombustible oils and gasses — combustibles and flammables — that meet the required flash points," Gouger said. "The energy recovery industry creates our greatest demand."

A Household Hazardous Waste Facility crewmember sorts paints and solvents for proper processing. *(Photo by Dave Harris)*

Hazardous Material Control Center protects environment, saves money

By Justin Ward
Europe District

Don't expect any sympathy from the environmental office at the Hohenfels Combat Maneuver Training Center in Hohenfels, Germany. If personnel find a can of spray paint or any other Environmental Protection Agency-designated dangerous substance abandoned in the woods, they'll find you.

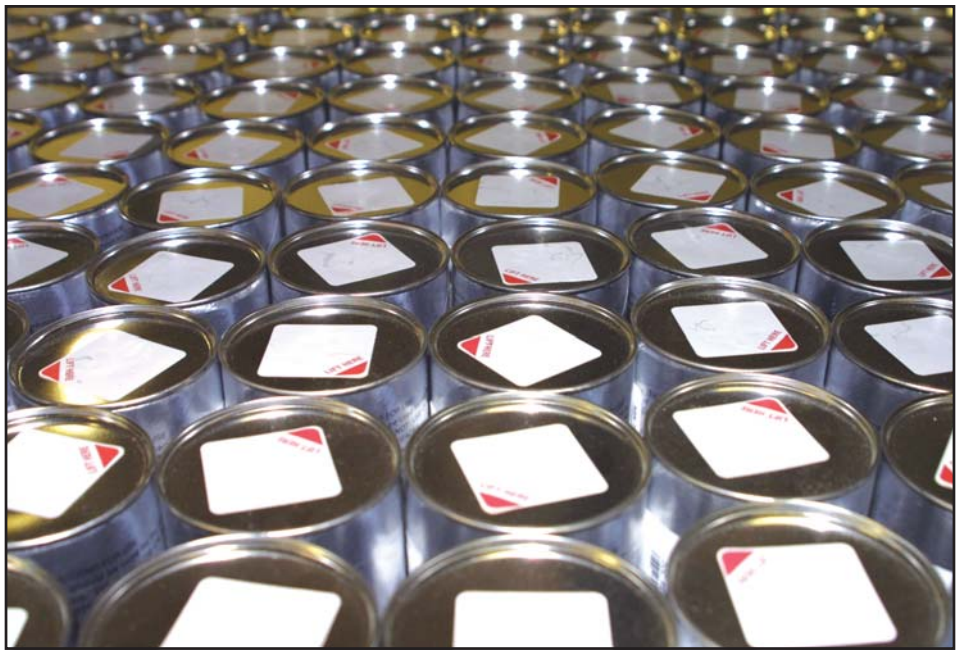
"There's a barcode on each item," said Jochen Dörr, who supports the Hohenfels Hazardous Material Control Center (HMCC). "We can find exactly who did it."

The HMCC is one of only a handful of hazardous material management units throughout the Army. Officially, they are tasked with tracking and reporting environmentally harmful materials to comply with both German regulations and the U.S. Emergency Planning and Community Right-to-Know Act.

Unofficially, they reduce hazardous material and hazardous waste risk, improve unit environmental compliance and save about $135,000 per year.

"I've been in the Army for 17 years, and this is the best hazardous containment center I've seen," said Chief Warrant Officer Anthony Coleman, operations group motor pool officer for the Hohenfels Blacksheep Observer-Controller unit. "These guys really do simplify things for us."

Similar programs have been implemented in various forms throughout many Army installations in Germany, including Grafenwöhr, Vilseck and the Kaiserslautern Military Community, said Sharon Lehn, U.S. Army Corps of Engineers Europe District project manager. But it is a rare occasion to find such a comprehensive and consolidated program, especially at such a small installation, she said.



Boxes and cans of everyday hazardous substances, like cleaning powder and detergent, line the aisles of Hohenfels' Hazardous Material Control Center. *(Courtesy photo)*

The district's role in the project is to administer the contract between the garrison and the contractor — in this case, The Environmental Company, Lehn said.

The concept behind the HMCC is simple — instead of having each unit at Hohenfels exert manpower, time and money to acquire, use, store and dispose of hazardous materials, the district helped the garrison create a unit to centralize the process. The HMCC staff frees up local units' resources and tracks all hazardous materials.

Tracking the materials is important, said Reinhold Fröhlich, the Hohenfels Directorate of Public Works Environmental Office manager. "If we see the whole system, then we can have control cradle-to-grave," he said.

That means not only does the HMCC order and house materials to support each unit's maintenance mission, it also manages each unit's supply, thereby safeguarding against unused surplus, he said.

If there is surplus, the HMCC also serves as a turn-in point for serviceable hazardous materials that can be re-used. This has a two-fold benefit, Dörr said. It avoids the costly disposal of a hazardous material, and it also enables the HMCC to redistribute any excess that would otherwise be thrown away — free of charge.

"They're always looking for ways to improve the system," she said, including providing courtesy inspections, frequent awareness training workshops and "weekly waste runs" where they take accumulated hazardous waste to the local storage facility. "We encourage this improvement, as long as it keeps the customer happy."

Environmental Advisory Board gives outside perspective to Corps

By Candice Walters
Headquarters USACE

August will be bittersweet for three people who never dreamed that they would ever be part of the U.S. Army Corps of Engineers' extended family.

The three, Dr. Denise Reed, Dr. G. Mathias Kondolf and Kenneth Babcock, are ending their service as members of the Chief of Engineers' Environmental Advisory Board.

The EAB is an advisory group that gives the Chief of Engineers outside, expert and independent advice on environmental issues facing the Corps. It also builds partnerships, understanding and cooperation with the environmental community, the public and the Corps.

For Reed, a professor in the Department of Earth and Environmental Science at the University of New Orleans, serving on the EAB has meant the opportunity to "learn more about how the Corps works and perhaps influence it, in some small way.

"I'm very interested in planning processes and procedures. I think I've brought that to the board and the Corps," she said. "Before joining the board I didn't know how big a part of the Corps' mission and budget ecosystem restoration is, and didn't realize the challenges the Corps faces. I have a better understanding, and I would like to think I've provided a few ideas."

Babcock is director of operations for Ducks Unlimited's Southern Regional Office and served until December as the EAB chairman. He said serving on the EAB was "an opportunity to take the criticism (that he had leveled against the Corps in the past) and use it in a constructive way."

Babcock admitted that although originally he wasn't quite sure that serving on the EAB was worthwhile, he's changed his mind.

"There's a growing number of people (within the Corps) who understand the Corps has as much responsibility to the environment as it does to flood control and navigation. I do believe my time was well spent," Babcock said.

Kondolf, an associate professor of environmental planning and geography at the University of California at Berkeley, said because the EAB has been evolving, it's hard for him to evaluate its effectiveness.

But "the EAB is starting to find its stride," he said. "It's becoming more product oriented."

One such "product" is the second National Conference on Ecosystem Restoration, which the Corps co-hosted in April in Kansas City, Mo. The first conference, in 2004, grew from an EAB suggestion.

> **'We've talked a lot about us, the EAB, being a way to educate Congress on how important it is for the Corps to establish leadership in ecosystem restoration.'**
>
> **— Kenneth Babcock**

Another "product" is the August 2006 recommendation to the Chief of Engineers to create an ecosystem restoration center of expertise. Then Chief of Engineers Lt. Gen. Carl A. Strock tapped Dr. Edwin Theriot, chief of the Environmental Community of Practice, to serve as the center's chief.

The center, though, is virtual at this time. "It needs a physical place and staff," Kondolf said. "One of the more difficult challenges for the Corps is that the funding stream is tied to specific projects. Something like the ecosystem restoration center of expertise needs a line item that supports programmatic concepts. I see the EAB as being the bully pulpit to convince the public and Congress that the Corps needs to make a long-term commitment to ecosystem restoration," he said.

"We've talked a lot about us, the EAB, being a way to educate Congress on how important it is for the Corps to establish leadership in ecosystem restoration," Babcock said.

"There's a long way to go," Reed agreed. "It's time for a leadership champion at Headquarters for ecosystem restoration and how natural systems work. I'm pleased with the progress in this area, but we can't let the Corps leadership off the hook. Somebody needs to ask questions, that's the EAB."

How the Environmental Operating Principles are being implemented is one area in which the EAB has had questions.

"I believe adopting the Environmental Operating Principles has been a positive move for the Corps," Babcock said. "But there's the need to mandate that everyone become conversant with the principles. In every decision, employees should consider the EOPs. If they are considered, then the Corps' work will have more balance."

Kondolf said he sees

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Facility supports coastal research at the beach

By Wayne Stroupe
U.S. Army Engineer Research and Development Center

About eight miles north of Kitty Hawk, N.C., where the Wright Brothers became pioneers in aviation in 1903, at Duck, N.C., researchers from the U.S. Army Corps of Engineers are doing pioneering work on coastal processes at the unique Field Research Facility (FRF).

The FRF supports coastal research projects at the ultimate laboratory setting — the beach. At the FRF, a small team conducts and supports innovative modeling and research to help the Corps build improved projects and better anticipate coastal storm and hurricane impacts.

This is a satellite research site of the U.S. Army Engineer Research and Development Center (ERDC), the Corps of Engineers research laboratory organization, headquartered in Vicksburg, Miss. The FRF allows engineers and scientists from ERDC's Coastal and Hydraulics Laboratory access to the coastal zone, specialized equipment and decades of accurate coastal data for civilian and military projects.

Established in 1977, the FRF's most impressive feature is the 1,840-foot-long concrete pier that serves as an observation, instrumentation and research platform for coastal processes studies. The pier allows research in the area from the dune, across the beach, the surf zone and out to about 20-foot water depths. The pier and the FRF have been featured in several scientific and engineering TV shows, and the Weather Channel and CNN have visited for filming.

Another major feature is a 120-foot observation tower that is home to cameras that offer visual records of the changing coast. Numerous instruments and sensors at the FRF constantly record the changing waves, winds, tides, currents and other variables in the coastal zone.

One of the main focuses of the facility's research has been to understand the movement of sand at and along the beach and coast. Knowledge of sediment transport under breaking waves significantly advanced during the 1980s and 1990s when the FRF hosted a series of national tests. More recently, the FRF has become a center for regional observations for use in validating and improving coastal processes computer models.

Field Research Facility personnel prepare to deploy instrumentation for a Navy project. *(Photo by Bill Birkemeier)*

One model, Modeling the Relevant Physics of Sedimentation, will be tested at the FRF. When finalized, the model will allow engineers to accurately predict what storms will do to sandbars, beaches, dunes and inlets, critical information for use in storm protection projects on all coasts.

The FRF continues to provide significant data that advances the understanding of the coastal environment.

Tours of the FRF are given between mid-June and mid-August — Monday through Friday at 10 a.m. For more information, visit the Web site at www.frf.usace.army.mil.

Board

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awareness of the principles among senior Corps leaders, "but I'm quite sure that if you randomly sampled Corps employees they couldn't tell you what the principles are and wouldn't be able to show you how they've implemented them. There's a lot of work to be done," he said.

Reed said she's confident that the people working in the districts can make positive changes.

"They are great folks and they need to be cultivated, rewarded and stimulated," she said. "The Corps needs to be keeping these technical people fully engaged and building the technical knowledge base. They have something very valuable to add."

And the three would say that's also true for the EAB.

"The new Chief of Engineers needs to ask the EAB questions, to use the EAB as a resource. It's an underutilized resource. The board is there to give constructive advice," Reed said.

"The EAB needs to work together to continue the theme of the Corps as a leader in ecosystem restoration in coordination with water resource management," Babcock said.

"The board needs to convince folks outside that the Corps is right for that role," he said. "A lot do not see the Corps as a leader, but an adversary. The board can work in that area to convince conservation stakeholders that the Corps is serious. It's a challenge."

Joint project looks at Texas watershed

Corps, partners embark on study of environmental flows at Caddo Lake.

By Clay Church
Fort Worth District

Destruction, wrath, fury and beauty are words not normally used except when discussing Mother Nature and her weather. The early years of the 21st century have demonstrated nature's awesome power through the destruction caused by earthquakes, hurricanes, tsunamis and tornados. These natural events also bring drought, floods and other events that impact our daily lives.

A large portion of the central United States is still under drought conditions, which has forced many to protect and preserve the current sources of water and to seek future sources. The U.S. Army Corps of Engineers Fort Worth District has agreed to work with numerous resource organizations to study how reservoir operations have affected ecological conditions in the Big Cypress Bayou and Caddo Lake in the piney woods of east Texas.

Recent rains in the Lake O' the Pines watershed have allowed a small amount of water to be stored in the flood pool of the lake. Controlled release of these flood waters is the first step in a partnership that began in 2004 with a series of science-based workshops organized by The Nature Conservancy and the Caddo Lake Institute, with assistance from the Corps, Northeast Texas Municipal Water District, several universities and federal, state and local government agencies. The workshops focused on developing an ecological understanding of the changes to downstream flow regimes resulting from sustained reservoir operations.

"The Fort Worth District is proud to work with The Nature Conservancy, United States Geological Survey, Caddo Lake Institute and other interested partners in being able to make calculated water releases from Lake O' the Pines in order to conduct field observations," said Paul Rodman, chief of Fort Worth District's Reservoir Control. "Our hope is that by making these water releases at specific times and amounts, the specialists in the field will be able to accurately measure the flows to promote ecologically sustainable water management practices."

The Corps' participation in environmental flows studies at Caddo Lake stems from a partnership with The Nature Conservancy called the Sustainable Rivers Project, a pilot project to protect river ecosystems downstream of multiple dams in 13 states.

Caddo Lake Institute President Richard Lowerre explained the term "environmental flows" as releases of water into Caddo Lake through its tributaries using a formula patterned after the natural conditions to which fish and other animals, plants and humans have become adapted.

"We are not seeking just one flow level, but seasonal variation, because some flood levels, some drought conditions and the timing of different flows are important for fish spawning, cypress tree regeneration, flushing of sediments and nutrients, and management of invasive aquatic plants," Lowerre said.

Carter Smith, The Nature Conservancy's Texas state director, sent a letter in August 2005 to Fort Worth District asking the district to consider operational changes in the way water is released from the reservoir.

"This is an amazing success story — one of broad partnerships involving the entire spectrum of stakeholders," Smith said. "The coordination between engineers and ecologists being demonstrated in this release of water from Lake O' the Pines represents a fundamental shift in how water is being managed, and a great deal of the credit goes to the Army Corps of Engineers for intrepidly moving this concept forward."

The flows began in late January and were able to be sustained into February.

"We were able to give them more than what they originally asked. We had the water to give them extra time to see how the flows are at the reach," Rodman said.

Some material from The Nature Conservancy news release at http://www.nature.org/wherewework/northamerica/states/texas/press/press2810.html were used in this article.

Fort Worth District works with several partners to make the appropriate water releases from Lake O' the Pines Dam to support the study at Caddo Lake. *(Courtesy Photo)*

Canine soldiers conduct munitions-sniffing test

By Ann Marie R. Harvie
New England District

Two extraordinary soldiers reported to the Massachusetts Military Reservation (MMR) on Cape Cod, Mass., the week of April 16 for a very special test. The two soldiers stand apart from other service men and women because they are of the four legged kind — they are members of the 67th Engineer Detachment (Canine). The dogs came to New England to see if they could sniff out sub-surface explosives that need to be cleared before soil and groundwater investigations or cleanup can get under way.

The U.S. Army Corps of Engineers New England District's mission at the MMR is to help determine the nature and extent of groundwater contamination resulting from past activities on the installation. The explosive, RDX, along with the oxidizer, perchlorate, are the primary contaminants found in the soil and groundwater on the northern portion of MMR.

The Army working dogs, a German Shepherd named Chan and a Belgian Malanois named Laika, both about 5 years old, spent most of the week at a designated prove-out area for the test. Soil containing the explosives used at the MMR was placed in glass jars and buried just beneath the surface of the soil. The dogs' trainers then directed them to run back and forth in lanes over the area. When the dogs smelled the material, they alerted their trainers by sitting at that location. The test was part of a joint effort with the New England District, U.S. Army Environmental Command's (USAEC) Impact Area Groundwater Study Program, U.S. Army Engineering and Support Center, Huntsville, and the canine unit from the Engineer School at Fort Leonard Wood, Mo.

Army working dogs and their human trainers prepare for their demonstration at the Massachusetts Military Reservation. *(Photo by Kevin Burke)*

Col. Curtis Thalken, New England District commander, suggested the use of the dogs based on prior experience working with munitions-sniffing dogs when he was stationed overseas.

"I had four unexploded ordnance (UXO) dogs sent to work for me in Afghanistan in early 2002," Thalken said. "They were actually provided by a contractor who had been doing UXO recovery work in the Balkans, not military working dogs. However, because the dogs proved to be very successful in Afghanistan, the Army developed a program to field Army units capable of doing the same thing."

Thalken said that most mechanical detection methods have a hard time distinguishing between scrap metal, inert ordnance and ordnance containing explosives, but the dogs are not hindered by this. "They only alert on the explosive components," he said. "Therefore, my hypothesis is that by using the dogs we could clean terrain of items containing explosives faster and at a reduced cost over mechanical means. This led to the trial at MMR."

The initial test at MMR proved promising. The dogs will return in the future to conduct additional tests on a larger scale to determine if they can find explosives under more difficult site conditions.

Corps and Conservancy set conference on ecological sustainability

The U.S. Army Corps of Engineers and The Nature Conservancy are sponsoring a partnership conference, entitled Developing Sustainable Aquatic Solutions, Oct. 1 – 4 at the Oglebay Conference Center and Resort in Wheeling, W.Va.

The conference will showcase the integration of ecologically sustainable water management into water resources projects, collaborative partnering arrangements, a poster session and a discussion on project funding.

Attendees are encouraged to submit posters on projects related to the field of ecological sustainability and restoration.

The deadline for poster submissions is July 31. For poster submissions, contact Patrick Deliman at patrick.n.deliman@erdc.usace.army.mil or Rob Brumbaugh at rbrumbaugh@tnc.org.

The keynote speaker is Chad Pregracke, president of Living Lands and Water and co-author of the recently released *From the Bottom Up: One Man's Crusade to Clean America's Rivers.*

For more information on the conference, contact Lisa Morales at lisa.t.morales@hq02.usace.army.mil or Liz Abbett at eabbett@tnc.org.

Trees

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sounded like a lot of fun for the kids to get their hands dirty and give something back. Also, the kids get a little ownership in the lake. These are their trees."

The efforts of Bell's program have already taken root. Trees planted 20 years ago are about 15 to 20 feet tall now and producing acorns and walnuts.

"Everyone looks forward to this event every year," he said. "The entire Hillsdale Elementary School makes it out here, including the teachers and even a lot of parents."

Students enjoyed a break from the classroom with 70 degree weather and slight winds.

"This is my third year coming out here to plant trees," said Cindy Graves, a parent.

"We've planted eight trees so far," said Alecs Burger, a third-grader who was working with his friend, Zane Clark. "That's a record!"

Bell said one of the fifth-grade teachers thanked him for keeping the program going.

"She thinks the kids really need programs like this," Bell said. "She's been here for all 20 years and said there's at least three generations of people coming back to this event now."

Bell said they planted 1,025 trees this year alone, and 18,000 "wildlife friendly" trees so far throughout the history of the event.

"We've planted about 15 species of trees at 13 different areas around the lake," Bell said.

This year, trees were provided by the Marais des Cygnes Riparian Program, but in the past, trees have been provided by the National Tree Trust, Quail Unlimited, Miami County Conservation District and U.S. Army Corps of Engineers.

Special for this year was an award presented to a volunteer couple.

"We also surprised a volunteer couple today with a National Call to Service Award," Bell said. "It's for volunteers who serve at least 4,000 hours. I think by the end of the summer, they'll have racked up around 10,000 volunteer hours."

Bell said he plans on continuing this event as long as there is a need for new planting sites, which will not be hard to find on a 13,000-acre project.

"I think this year's event went really well," he said. "We had about a half an inch of rain a few days after the planting, so I think the trees will do really well."

Top 10 U.S. cities ranked by percentage of power from renewable resources

1. Oakland, Calif. – 17 percent
2. Sacramento/San Francisco/San Jose, Calif. – 12 percent
3. Portland, Ore. – 10 percent
4. Boston – 8.6 percent
5. San Diego – 8 percent
6. Austin, Texas – 6 percent
7. Los Angeles – 5 percent
8. Minneapolis – 4.5 percent
9. Seattle – 3.5 percent
10. Chicago – 2.5 percent

Information courtesy of the SustainLane Web site: http://sustainlane.us/articles/city_renewable_energy.jsp

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